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**Stoy**

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(54) **SPINAL NUCLEUS IMPLANT**

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(57) **ABSTRACT**

The present invention is a spinal nucleus implant for replacement of at least a portion of nucleus pulposus tissue removed from a spinal disc of a living vertebrate to restore function of the spinal disc and related vertebral joint. The implant is an anisotropically swellable, biomimetic xerogel plastic, having a two phase structure with a hydrophobic phase having high crystallinity and low water content and with hydrophilic phase having low crystallinity and high water content and having a negatively charged lubricious surface. The xerogel plastic is capable of rehydration and of osmotic movement of liquid therethrough in response to osmotic pressure change to thereby increase and decrease liquid content in its hydrated state. The present invention also relates to surgical implant procedures utilizing this spinal nucleus implant.

**38 Claims, 3 Drawing Sheets**

